

Reinstatement of *Ptilotus parviflorus* (Lindl.) F.Muell. (Amaranthaceae)

A.R. Bean

Summary

Bean, A.R. (2019). Reinstatement of *Ptilotus parviflorus* (Lindl.) F.Muell. (Amaranthaceae). *Austrobaileya* 10(3): 473–479. *Ptilotus parviflorus* (Lindl.) F.Muell., a species allied to *P. obovatus* (Gaudich.) F.Muell., is lectotypified and reinstated. The distinguishing morphological features of the two species are listed. Distribution maps and illustrations are provided for both species.

Key Words: Amaranthaceae, *Ptilotus obovatus*, *Ptilotus parviflorus*, taxonomy, Australia flora, distribution map

A.R. Bean, Queensland Herbarium, Department of Environment and Science, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowong, Queensland 4066, Australia. Email: tony.bean@des.qld.gov.au

Introduction

Ptilotus obovatus (Gaudich.) F.Muell. was described from the west coast of Western Australia, but is known from all mainland states of Australia (AVH 2019), and is quite variable, with a number of recognised morphotypes. Some of these morphotypes may be associated with polyploidy, which has been demonstrated for *P. obovatus* (Stewart & Barlow 1976). These authors also noted gynodioecy (male sterility in some populations) for *P. obovatus*.

Taxonomic treatments of recent decades have relegated *Ptilotus parviflorus* (Lindl.) F.Muell. to varietal rank under *P. obovatus* (Benl 1959) or to synonymy with it (Bean 2008).

During a recent reappraisal of specimens at the Queensland Herbarium identified as *Ptilotus obovatus* (Gaudich.) F.Muell., it was realised that numerous specimens from the eastern edge of the range of *P. obovatus* were distinctly different in morphology. These taxa were initially separated by the features of the hairs on the outer surface of the tepals, and because this correlated well with other characters, it was decided that the two taxa should be recognised at species rank. The

more widespread taxon is *Ptilotus obovatus* s. lat., while the other includes the type of *P. parviflorus* (Lindl.) F.Muell. and is reinstated here.

Materials and methods

This study is based on a morphological examination of herbarium specimens at BRI (205 of *Ptilotus obovatus* s. lat., 80 of *P. parviflorus*), originating from Western Australia, Northern Territory, South Australia, Queensland and New South Wales. Specimen images from CANB, CGE, K, MEL and NSW have also been examined. All measurements are based on dried herbarium specimens.

Taxonomy

Ptilotus parviflorus (Lindl.) F.Muell., *Syst. Census Austral. Pl.* 1: 28 (1883); *Trichinium parviflorum* Lindl., *Three Exped. Australia [Mitchell]* 2: 12 (1838); *Ptilotus obovatus* var. *parviflorus* (Lindl.) Benl, *Mitt. Bot. Staatssamml. München* 3: 512 (1959). **Type:** New South Wales. Interior of New Holland [Byrne's Creek, E of Forbes, 33° 27'S 148° 19'E], 24 March 1836, *T.L. Mitchell* (lecto: CGE [here chosen, digital image at BRI!]; isolecto: K 000356788; K 000356789).

Trichinium virgatum A.Cunn. ex Miq., *Prodr. [A. P. de Candolle]* 13(2): 286 (1849). **Type:** New South Wales. Swampy plains near

Lachlan River, July 1817, *A. Cunningham 17/1817* (syn: K 000196975).

Trichinium subviride Domin, *Biblioth. Bot.* 89: 81 (1921). **Type:** Queensland. BURKE DISTRICT: Near Cloncurry, January 1910, *K. Domin s.n.* (holo: ?PR, *n.v.*).

Ptilotus obovatus var. *lanceifolius* Benl, *Mitt. Bot. Staatssamml. München* 4: 279 (1961). **Type:** Queensland. BURKE DISTRICT: 13 miles [21 km] SSE of Kajabbi township, 29 August 1953, *M. Lazarides 4006* (holo: CANB; iso: BRI, MEL).

Sparsely branched woody shrub 30–50 cm high. Branchlets with dense to very dense verticillate hairs 0.1–0.2(–0.4) mm long; older stems sparsely to densely hairy, terete. Leaves alternate, sessile or sub-sessile; lamina narrowly elliptic to spatulate, 23–57 mm long, 5.3–15 mm wide, 3.4–5 times longer than broad, pale green, surface smooth, apex acute; upper surface with hairs sparse to moderately dense, persistent, stellate to rarely verticillate; midrib visible, but no other venation apparent; lower surface with hairs sparse to dense, persistent, verticillate or sometimes stellate; midrib visible, and a few lateral veins often visible. Inflorescence terminal, spicate, spikes ovoid to cylindrical, 1.2–3.7 cm long, many-flowered. Rachis 10–35 mm long with very dense spreading verticillate hairs to 0.4 mm long. Bract broadly ovate, cymbiform, translucent, brittle, 2.6–3.5 mm long, apex mucronate, inner surface glabrous, outer surface densely covered with verticillate hairs. Bracteoles broadly ovate, cymbiform, translucent, brittle, 2.5–3.7 mm long, apex mucronate, inner surface glabrous, outer surface with dense verticillate hairs along midrib, otherwise \pm glabrous. Perianth 5.6–7 mm long, grey with pink tip. Tepals linear, hairs spreading verticillate to nodose, 1–1.5 mm long in distal half, 0.3–0.6 mm long at base, apex glabrous. Outer tepals 2, 4.9–6.8 mm long, glabrous on inner surface; inner tepals 3, 4–6.3 mm long, glabrous on inner surface, except for sparse hairs at base of innermost tepal. Fertile stamens 3, filaments of varying length, 1.5–3 mm long, anthers 0.4–0.65 mm long, dorsifixed, versatile; staminodes 2, comprising flattened

filaments 2–3 mm long. Ovary glabrous; style conspicuously eccentric, straight, 2.5–2.8 mm long, glabrous; stigma slightly broader than style. **Figs. 1–3.**

Additional selected specimens examined: **Northern Territory.** Near Rockhampton Downs, May 1947, *Blake 17847* (BRI, DNA). **Queensland.** BURKE DISTRICT: Cloncurry, Nov 1935, *Blake 10118* (BRI, DNA); NW of Hughenden, Nov 1935, *Blake 10078* (BRI, DNA, PERTH); S of Julia Creek – Burketown Road on the access road to Alcala station, Mar 2005, *Fox IDF3613 & Wilson* (BRI, PE). NORTH KENNEDY DISTRICT: Muntalunga Range, SE of Townsville, Apr 1996, *Cumming 14515* (BRI); Tomato Pocket, Great Basalt Wall, Jun 1992, *Fensham 4* (BRI). SOUTH KENNEDY DISTRICT: 9.5 km W of St Anns Homestead, Jun 1992, *Thompson BUC469 & Sharpe* (AD, BRI, K, PR, US); ‘Weetalabah’, Jan 1993, *Fensham 511* (BRI). MITCHELL DISTRICT: Manningham Station, 2 km E of homestead, 45 km W Longreach, Oct 1989, *White NE51636A* (AD, BRI, NE); Merrick paddock, ‘Vergemont’, W of Longreach, May 2004, *Bean 22324* (BRI, NSW); Capricorn Highway, 19.8 km W of Barcardine, May 2010, *Bean 29718* (BRI, NT); ‘Spring Plains’, 100 km WSW of Longreach, Apr 1989, *Emmott 276* (BRI). 44.9 km from Blackall towards Adavale, Oct 1983, *Canning 6190 & Rimes* (BRI, CANB, M, NSW); Enniskillen, Dec 1941, *White 11661* (BRI); GREGORY NORTH DISTRICT: Elderslie, W of Winton, on upper parts of Mt Booka Booka, Oct 1935, *Blake 10054* (BRI, DNA); Bladensburg NP, S of Winton, Middle Creek, Mar 1998, *Forster PIF22292 & Booth* (AD, BRI, MEL); Winton – Jundah road, 19.4 km N of ‘Elvo’ Homestead, May 2004, *Bean 22557* (BRI, NSW); 143 km by road SE of Boulia, 15 km past ‘Springvale’ Homestead on road to Diamantina Lakes, Mar 2001, *Thomas 2191 & Fechner* (BRI). WARREGO DISTRICT: Morven, Dec 1890, *Bailey s.n.* (BRI [AQ178727]). **New South Wales.** 4.6 km E of Peisley junction, c. 50 km SSW of Nyngan, Mar 2008, *Bean 27684* (BRI).

Distribution and habitat: *Ptilotus parviflorus* is widespread in central-western Queensland, and extends to the coast near Townsville; also in New South Wales, as far south as Forbes, and in central Northern Territory (**Map 1**). It grows in a variety of habitats, including clay plains with *Acacia cambagei* R.T.Baker, stony hills with red soil dominated by *Acacia aneura* F.Muell. ex Benth., and on mesa slopes with *Eucalyptus leucophloia* Brooker and *Triodia* sp. In New South Wales, it can occur with *E. populnea* F.Muell. and *E. woollsiana* R.T.Baker.

Phenology: Flowers are recorded for every month of the year.

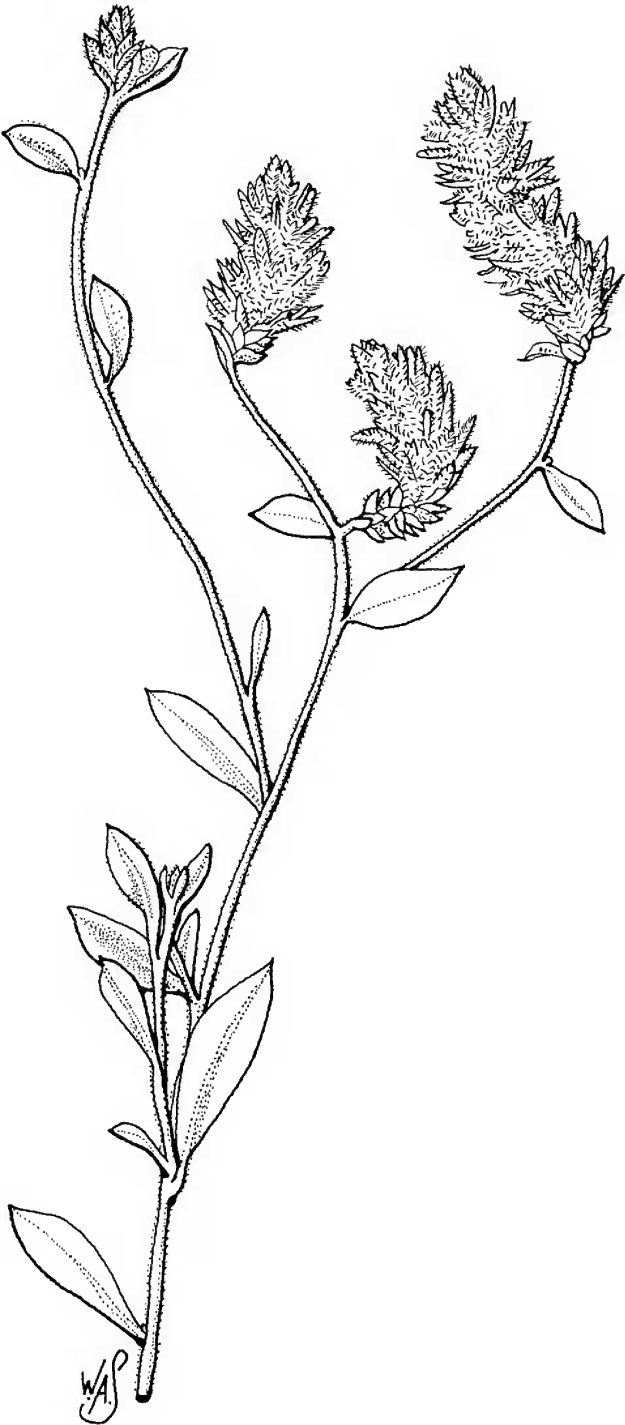


Fig. 1. Flowering branchlet of *Ptilotus parviflorus* (Bean 22557, BRI).



Fig. 2. Inflorescence of *Ptilotus parviflorus* (Bean 22557, BRI).

Typification: A specimen at K (K 000356788), collected from Lachlan River by T.L. Mitchell is so similar to the lectotype of *Ptilotus parviflorus* that it is here considered an isoelectotype, despite the field label saying “Mitchell 23”; the label of the lectotype includes a number “24”, but this is not in Mitchell’s hand. K 000356789 is also very similar to the lectotype, and is likewise considered to be an isoelectotype. Someone has written the year of collection as “1838”, but this must be a mistake as Mitchell was not involved with any exploration in that year.

The type of *Trichinium subviride* has not been seen, and its placement as a synonym of *P. parviflorus* is based on the description given in the protologue.

Affinities: In *Ptilotus parviflorus*, the hairs on the outer surface of the tepals are 1–1.5 mm long (midway along or towards apex of tepal), and 0.3–0.6 mm long at the base of the tepal; the inflorescences are up to 3.7 cm long; the bracteoles are very densely hairy almost throughout and creamy-yellow in colour; and



Fig. 3. Lateral view of *Ptilotus parviflorus* flower (bract and bracteoles removed) (Bean 22557, BRI).

the ovary is glabrous. In *Ptilotus obovatus*, the tepal hairs are 2–3.8 mm long for most of the tepal length, and 1.2–2.5 mm long at the tepal base (**Fig. 4**); the inflorescences are up to 2.4 cm long; the bracteoles are sparsely hairy throughout in most variants, or at times glabrous, and often dark brown in colour (one variant can have densely hairy bracteoles); and the ovary always has a cluster of erect hairs (0.25–0.5 mm long) adjacent to the style.

Notes: The geographical ranges of *Ptilotus obovatus* and *P. parviflorus* overlap considerably (**Map 2**), but the author has been unable to detect any evidence of hybridisation or intergradation, and it is postulated that they are reproductively isolated. No evidence of gynodioecy has been observed in herbarium specimens of *P. parviflorus*, providing another potential difference from *P. obovatus* (Stewart & Barlow 1976).



Fig. 4. Lateral view of *Ptilotus obovatus* flower (bract and bracteoles removed) (Cowan 21 & Bushell, BRI).

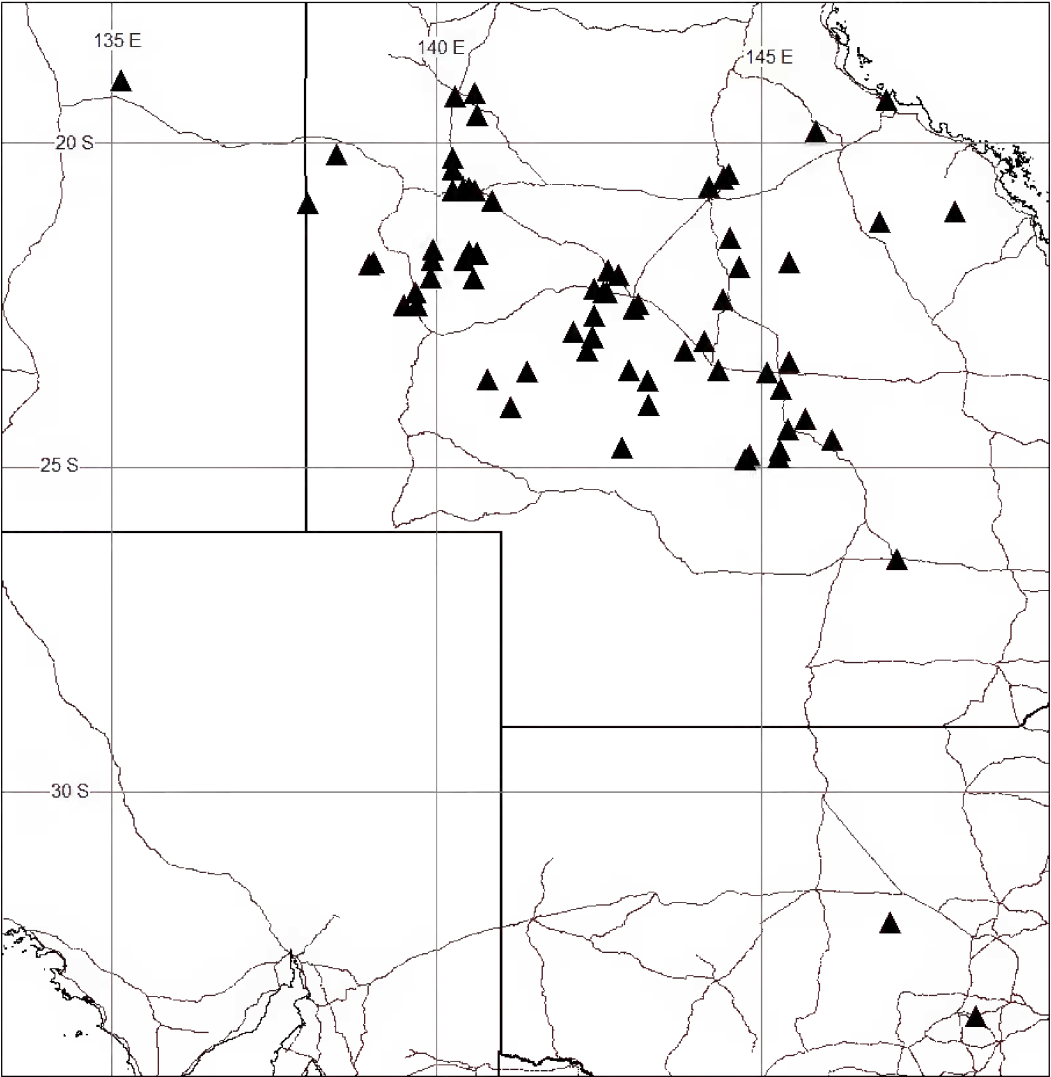
Conservation status: Least concern (IUCN 2012).

Acknowledgements

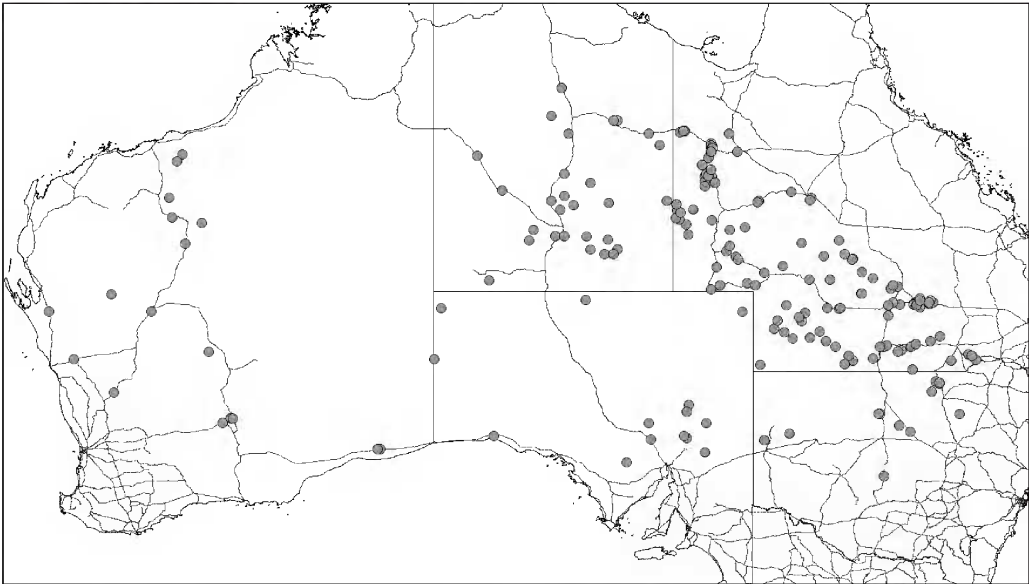
I thank Chris Appelman (BRI) for providing the unusual *Ptilotus* specimen (*P. parviflorus*) that led to this paper. Will Smith (BRI) provided the illustrations and distribution maps.

References

- AVH (2019). *The Australasian Virtual Herbarium*. Council of Heads of Australasian Herbaria. <http://avh.chah.org.au>, accessed 17 January 2019.
- BEAN, A.R. (2008). A synopsis of *Ptilotus* (Amaranthaceae) in eastern Australia. *Telopea* 12: 227–250.
- BENL, G. (1959). Beitrag zu einer revision der Gattung *Ptilotus* R.Br. (Amaranthaceae) 2. Teil. *Mitteilungen der Botanischen Staatssammlung Munchen* 3: 510–518.
- IUCN (2012). *IUCN Red List Categories and Criteria*. Version 3.1, 2nd ed. <http://portals.iucn.org/library/efiles/documents/RL-2001-001-2nd.pdf>, accessed 6 July 2018.
- STEWART, D.A. & BARLOW, B.A. (1976). Intraspecific polyploidy and gynodioecism in *Ptilotus obovatus* (Amaranthaceae). *Australian Journal of Botany* 24: 237–248.



Map 1. Distribution of *Pilotus parviflorus* based on BRI records.



Map 2. Distribution of *Ptilotus obovatus s. lat.* based on BRI records.